REMARKS

Claims 1-4, 6-11, 13-17, 19, and 20 are all the claims pending in the application. Claims 5, 12, and 18 are cancelled and their limitations are incorporated into independent claims 1, 8, and 15, respectively. Claim 2 stands rejected upon informalities. Claims 1-4, 6-11, 13-17, 19, and 20 stand rejected on prior art grounds. In addition, the drawings are objected to. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The 35 U.S.C. §112, Second Paragraph, Rejection

Claim 2 stands rejected under 35 U.S.C. §112, second paragraph. These rejections are traversed as explained below. Claim 2 has been amended to remove the term "partial" which was inadvertently placed in the claimed because of a word processing/typing error. The terminology "said successive summation unit" finds proper antecedent basis in the last line of independent claim 1. Applicants submit that the forgoing merely corrects a word processing/typographical error and does not broadened or narrow the scope of the invention being defined. Therefore, it is Applicants intention that the foregoing claim amendment does not narrow the invention being defined. To the contrary, it is Applicants intention that the same breath of coverage be included before and after the amendment. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

II. The Prior Art Rejections

Claims 1-4, 7-11 and 14 stand rejected under 35 U.S.C. §102(b) as being anticipated by Cavallotti et al. ("Cavallotti"). Claims 1, 5, 6, 8, 12, 13, 15, 18, and 19 stand rejected under 35 U.S.C. §102(b) as being anticipated by Claydon et al. ("Claydon"). Claims 15-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cavallotti in view of Behrens et al. ("Behrens"). Applicants respectfully traverse these rejections based on the following discussion.

A. The Rejection Based on Cavallotti

The Office Action argues that Cavallotti discloses, in Figure 1, summation units that include a multiplier 14 connected to an adder 24 with the delay units 32 between each of the summation units. Previous dependent claims 5, 12, and 18 defined that each of the adders is connected to two multipliers. These features are shown in Applicants' Figure 3 where each of the adders 13 is connected to two multipliers. These limitations have been incorporated into independent claims 1, 8, and 15 (respectively) and dependent claims 5, 12, and 18 have been cancelled.

Cavallotti does not teach or suggest these features, nor does the Office Action proposes that Cavallotti teaches such features. This is confirmed by the different rejections presented in the Office Action. Dependent claims 5, 12, and 18 were not rejected based on Cavallotti, but instead were rejected based upon a completely different reference (Claydon). Claydon also does

not teach or suggest these features (as discussed in greater detail below). Therefore, Applicants submit that the incorporation of dependent claims 5 and 12 into independent claims 1 and 8, respectively, renders this rejection moot. Thus, independent claims 1 and 8 are patentable over Cavallotti and dependent claims 2-4, 7, 9-11, and 14 are similarly patentable. In view of the forgoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The Rejection Based on Claydon

As discussed above, independent claims 1, 8 and 15 have been amended to include the limitations of dependent claims 5, 12, and 18 and these dependent claims have been cancelled. More specifically, independent claims 1, 8, and 15 define that each of the adders is connected to two multipliers. These features are shown in Applicants' Figure 3 where each of the adders 13 is connected to two multipliers. The Office Action argues that Figure 43 of Claydon discloses two multipliers connected to an adder and then concludes that this satisfies the features defined by previous claims 5, 12, and 18.

Applicants note that, in Figure 43 of Claydon, it appears that the multipliers C_0 and C_1 are connected to a single adder. However, this apparent teaching does not meet the limitations of independent claims 1, 8, and 15. More specifically, independent claims 1 and 8 define that <u>each</u> of the summation units includes two multipliers connected to an adder. Independent claim 15 similarly defines that <u>each</u> of the adders is connected to two multipliers. These structures are not shown in Figure 43 of Claydon. Instead, Figure 43 of Claydon only discloses a single instance of

one of the adders being connected to two multipliers with the remaining adders being connected to a single multiplier.

In addition, one of the signals from one of the multipliers is delayed by unit Z^{-1}. Therefore, in the structure disclosed in Figure 43 of Claydon, the adder of interest to this discussion will not be simultaneously supplied with signals from the two different multipliers because one of the signals will be delayed. This is contrary to the structure defined by dependent claims 4, 11, and 17 which define that the multipliers receive the samples and an undelayed state.

Therefore, Applicants submit that Claydon does not disclose the structure defined by independent claim 1 that provides "each of said summation units comprising: two multipliers . . . and an adder connected to said multipliers," the structure defined by independent claim 8 that provides "each partial summation unit having two multipliers for multiplying and undelayed state of each of said samples, and an adder for adding multiplied samples," or the structure defined by independent claim 15 that provides "a plurality of adders, each of said adders being connected to two of said multipliers." To the contrary, Figure 43 of Claydon only discloses a single instance of differently delayed multipliers being connected to a single adder with the remaining adders having only one multiplier.

In view of the forgoing, Applicants submit that independent claims 1, 8, and 15 are patentable over Claydon. Further, dependent claims 6, 13, and 19 are similarly patentable, not only by virtue of their dependency from a patentable independent claim, but also by virtue of the additional features of the invention they define. In view of the forgoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

C. The Rejection Based on Cavallotti and Behrens

Behrens is referenced in the Office Action for the limited purpose of disclosing an interleaved non-recursive filter where even and odd samples are processed separately. There is no indication in the Office Action or in the Behrens reference of any teaching regarding two multipliers being connected to each adder as defined by independent claim 15. Therefore, the Behrens reference does not change the forgoing argument presented by Applicants with respect to either the Cavallotti reference or the Claydon reference. Thus, it continues to be Applicants position that even in view of the Behrens reference, independent claim 15 remains patentable over the prior art of record. Similarly, dependent claims 16 and 17 are also patentable. In view of forgoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. Formal Matters and Conclusion

With respect to the objection to the drawings, a Submission of Proposed Drawing Corrections is submitted herewith marking Figure 1 "Prior Art." In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objections/rejections to the claims and drawings.

In view of the foregoing, Applicants submit that claims 1-4, 6-11, 13-17, 19, and 20, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above

application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

Dated: 2/21/03

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Marked Up Version of Changes Made:

1. (Amended) A non-recursive filter for receiving samples and generating a filtered signal, said filter comprising:

at least one input for receiving said samples;

a plurality of summation units, each of said summation units comprising:

[at least one] two multipliers directly connected to said input, said multipliers multiplying said samples and providing multiplied samples; and

[at least one] an adder connected to said multipliers, said adder adding said multiplied samples and providing added samples; and

a plurality of delay elements positioned between said summation units, said delay elements receiving said added samples and providing a delayed output of said added samples to a successive summation unit of said summation units.

2. (Amended) The non-recursive filter in claim 1, wherein each of said delay elements is connected to an adder of said successive [partial] summation unit.

4. (Amended) The non-recursive filter in claim 1, wherein said multipliers receive[s] said samples in an undelayed state.

Please cancel claim 5 without prejudice or disclaimer.

6. (Amended) The non-recursive filter in claim [5] 1, wherein said non-recursive filter comprises an interleaved non-recursive filter receiving odd and even samples and said [single] adder receives an odd multiplied sample from one [multiplier] of said two multipliers and an even multiplied sample from a second [multiplier] of said two multipliers.

8. (Amended) A non-recursive filter for receiving samples and generating a filtered signal, said filter comprising:

a plurality of successive partial summation units, each partial summation unit having two multipliers for multiplying an undelayed state of each of said samples, and an adder for adding multiplied samples; and

a plurality of delay elements each coupled to said adder for receiving added samples and for providing a delayed output of said added samples to a successive partial summation unit.

11. (Amended) The non-recursive filter in claim 8, wherein said multipliers receive[s] said samples in an undelayed state.

Please cancel claim 12 without prejudice or disclaimer.

13. (Amended) The non-recursive filter in claim [12] 8, wherein said non-recursive filter comprises an interleaved non-recursive filter receiving odd and even samples and said [single] adder receives an odd multiplied sample from one [multiplier] of said two multipliers and an

even multiplied sample from a second [multiplier] of said two multipliers.

15. (Amended) An interleaved non-recursive filter for receiving samples and generating a filtered signal, said filter comprising:

at least one input for receiving said samples;

a plurality of multipliers directly connected to said input, said multipliers multiplying said samples and providing multiplied samples;

a plurality of adders, each of said adders being connected to two of said multipliers, said adders adding said multiplied samples and providing added samples; and

a plurality of delay elements positioned between said adders, said delay elements receiving said added samples and providing a delayed output of said added samples to a successive adder of said adders.

Please cancel claim 18 without prejudice or disclaimer.

19. (Amended) The interleaved non-recursive filter in claim [18] 15, wherein said samples comprise odd and even samples and said [single] adder receives an odd multiplied sample from one [multiplier] of said two multipliers and an even multiplied sample from a second [multiplier] of said two multipliers.